



• P R E S S R E L E A S E •

Consultative Group on International Agricultural Research

Contact: 1818 H St., NW, Washington, DC
Marshall Hoffman - 703-820-2244
Heinrich von Loesch - 202-473-8913

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Ismail Serageldin, Chairman of the Consultative Group on International Agricultural Research (CGIAR), will be available for interviews on Thursday morning, August 1 by calling 703-820-2244.

POOR FARMERS COULD DESTROY HALF OF REMAINING TROPICAL FOREST

Nearly half of Earth's remaining 5 billion acres (2 billion hectares) of tropical forests could be lost to agriculture, mostly to poor farmers, says a new report by the Consultative Group on International Agricultural Research (CGIAR).

Much of the remaining 2.5 billion acres -- an area larger than all of Canada -- of tropical forest, on land generally not suitable to agriculture, are endangered by potentially harmful logging, warns CGIAR.

The annual rate of tropical forest loss is not diminishing, despite rising global awareness, sharply increased aid for tropical forestry, and a decade of international efforts to shape coherent global strategies for saving humanity's tropical forest patrimony, says CGIAR. Some 72 acres (29 hectares, or ha) of tropical forest are lost every minute, or 38.1 million acres (15.4 million ha) per year.

"There is no magic bullet to saving the world's tropical forests," says Ismail Serageldin, chairman of CGIAR and World Bank Vice President for Environmentally Sustainable Development. "What is needed is a comprehensive effort on a solid scientific basis to attack the root causes of deforestation -- poverty, rising population, bad natural resource management and distorted forest policies."

CGIAR says that deforestation is a complex problem that requires many simultaneous and complementary initiatives, such as assisting farmers in raising their output on their present land, developing new tropical tree types that are more productive, and developing environmentally sustainable logging practices.

The report demonstrates that the main threat to tropical forests comes from poor farmers who have no other option to feeding their families other than slashing and burning a patch of forest and

growing food crops until the soil is exhausted after a few harvests, which then forces them to move on to a new patch of forest land. Slash-and-burn agriculture results in the loss or degradation of some 25 million acres of land per year (10 million hectares).

"Some 350 million people in tropical countries are forest dwellers who derive half or more of their income from the forest. Forests provide directly 10 percent of the employment in developing countries," says Jeffrey Sayer, Director General of the Center for International Forestry Research (CIFOR), based in Bogor, Indonesia, which researches better ways to manage and preserve existing forests. CIFOR is one of two CGIAR research institutes that specialize in tropical forestry.

"We will not be able to protect every acre of existing tropical forest," says Mr. Serageldin. "The needs of a growing population will force the conversion of some forest land to agriculture and settlements. But policies must be in place that ensure that only the forest land best suited for agriculture is converted, and only where it is vitally needed, and that the most valuable forests, the richest biodiversity habitats, are adequately protected."

CGIAR also says that logging can be done in a careful environmentally sustainable manner that will not damage the forest. There are a few good examples of that. There, the income from sustainable logging can cover the cost of maintaining the forest and raise its value. "What must be ended is the wanton destruction brought about by shortsighted greed and the destitution of the poorest," says Mr. Serageldin.

The other tropical forestry institute is the International Center for Research in Agroforestry (ICRAF), based in Nairobi, Kenya. ICRAF seeks to develop sustainable farming practices for marginal areas that can reduce or even eliminate the need to clear forest for farmland, and help reclaim vast tracts of degraded land using trees to restore fertility to exhausted soils.

Agroforestry

ICRAF researches the integration of trees into farming --- agroforestry -- in order to reduce the pressure on forests by providing farmers with a nearby, convenient source of food, fuelwood and timber for construction and fences.

ICRAF is seeking to improve products from the vast and largely untapped genetic wealth of trees found in tropical forests and woodlands. Tropical tree products include fruits, nuts, oils, resins, medicines, cosmetics, fibers, fodder and dyes -- as well as timber and fuelwood -- all of which contribute to the earnings of rural households, improve food security and reduce the risk of crop failure among subsistence farmers.

Agroforestry is well suited to the forest margins of Latin America, Southeast Asia and Africa, where slash-and-burn agriculture is widespread.

A World Bank study shows that intensification of agriculture induces farmers to plant more trees because of increased need for timber, fuelwood, and the agricultural and environmental benefits of trees. Consequently, rural population growth and intensified farming can be expected to boost agroforestry. Small farmers plant more trees per area than large farmers, says the World Bank study.

"Agroforestry is becoming popular to the point where farmers in some fertile and densely populated developing country regions have planted so many trees -- fruit trees among them -- that the farmland could actually satisfy the official criteria for being considered a forest," says Pedro Sanchez, Director General of ICRAF.

One superb example of sustainable land use comes from the Indonesian island of Sumatra, where agroforestry researchers are working with villagers and policy makers to understand and to protect one of the most intricate agrofarming systems in the world, developed over the past century by farmers who have literally learned how to garden with forest trees over a large area.

After clearing small pieces of land, usually by slashing and burning, the farmers plant rainfed rice for a year, after which they plant coffee and pepper and up to 39 species of indigenous trees, including *Shorea javanica*, which produces valuable damar resin, and jungle rubber, which accounts for 70 percent of the rubber produced in Indonesia.

Once the trees mature, the farmers can harvest --- for two or three generations -- the resin, fruits and other products. These 'forest gardens' preserve biodiversity and safeguard the environment while being economically productive. Entire regions in Sumatra where these forest gardens are found are experiencing an economic boom, while preserving about 70 percent of the plant and bird biodiversity of the original forest in these human-made complex agroforests.

Tree Improvement - Cinderella Trees

For more than a century, scientific research has yielded major advances in food crops such as wheat, rice and corn (maize), by multiplying their productivity and strengthening their resistance against diseases and pests. CGIAR forestry and agroforestry scientists are now bringing similar improvement to trees.

ICRAF is focusing on 'Cinderella trees', so called because they have been overlooked by researchers and international markets despite their great potential. By using simple, low-tech horticultural techniques to select for traits that farmers and markets find desirable -- larger fruits, lower crowns, better quality nuts or oils -- ICRAF researchers are encouraging farmers to grow trees on their farms.

Tropical trees and crops with the most potential include:

Bush Mango (*Irvingia gabonensis*) -- Farmers in the humid lowlands of West Africa have identified the bush mango for ICRAF tree-improvement work. People eat the fruit and make a thickening agent for stews from the kernels, and it is a major item of trade in regional markets. Researchers have collected seed and established live genebanks, and are now starting to improve the tree according to farmers' preferences. This means developing a tree that is shorter to facilitate fruit harvesting and also one that produces more and bigger fruit, over a longer period of the year.

Peach Palm (*Bactris gasipaes*) -- Peach palm is indigenous to the Upper Amazon, where it has been domesticated over several centuries. It produces food and animal feed from its fruits, medicines from its roots and wood for parquet floors. It also produces the delicacy heart of palm, or "palmito," worth about \$50 million a year on the international market.

Masuku (*Uapaca kirkiana*) -- This is one of 50 valuable species of fruit trees found throughout the indigenous African woodlands, known as miombo, that stretches from Tanzania south to Malawi. It is an undomesticated tree, valued for its juicy and tasty fruit, wood and medicinal products. At the moment, it is found only in the woodlands or on farms, where farmers deliberately leave it standing when land is cleared for cropping. Researchers are now looking at ways to domesticate this tree for more intensive use on farms. Besides its use for juices, squashes, porridge, jams and cakes, it is also used to make the popular wines called "mulunguzi" and "masuku."

African plum (*Dacryodes edulis*) -- The African plum, a tree indigenous in the humid lowlands of West Africa, produces a popular fruit that is cooked before it is eaten. It is probably the most widely planted indigenous species in the region, but its domestication would ease propagation for use on farms, and also help develop higher-value fruit with more pulp that could fetch more in local and regional markets. An ICRAF farmer survey identified the African plum as one of the top five priority species in the region.

Pygeum (*Prunus africana*) -- The pygeum bark is the industrial source of a drug used to treat benign hyperplasia (abnormal increase in tissue growth) and prostate gland hypertrophy, ailments suffered by 60 percent of older men. The current trade in this bark is estimated at \$150 million per

year. Its overexploitation in its natural African ecosystem is causing concern for wildlife in the zone where it grows. Its domestication could bring economic, social and environmental benefits in the tropics. At present, the drug is not synthesized industrially.

Meru oak (*Vitex keniensis*) -- Meru oak, like many other quality timbers such as mahogany, does not grow well on plantations. Farmers in Kenya and Cameroon are now starting to grow a few trees on their farms, which may become important for the future of the timber industry, and for small-scale farmers.

Conserving and Managing Forests

One of CIFOR's priorities is to find ways to increase the benefits to local people from conserving and managing the forests -- such as finding new markets for underutilized forest products. Another method is through developing management structures that better involve local communities in making decisions about how forests are used.

"Wood and wood products make up only 50 percent of total forest product value; the non-wood products constitute the other half," says Mr. Sayer. "Research conducted by CIFOR on the use and commercialization of these products effectively raises the income of the poor and makes their existence sustainable without a single acre of forest being felled. Those living by gathering and using these forest products -- mostly women -- are among the world's poorest. Their indigenous knowledge about non-wood products needs to be matched with modern science, and further erosion of this precious knowledge must be prevented."

CIFOR is also studying how tropical forests respond to different kinds of land management through landscape studies in different parts of the world. These studies provide the scientific basis for finding new techniques for harvesting forests in ecologically sustainable ways. This "reduced impact logging" has already demonstrated great potential to minimize soil erosion, retain biodiversity and reduce by over 40 percent the carbon released when loggers fell trees.

"When people's continuing livelihoods depend on a healthy forest, they can and do protect and manage that forest," says Mr. Serageldin. "Another way of increasing the value of forest land, as well as discouraging non-sustainable logging practices, is by raising the value of timber from sustainable production. Current efforts to introduce eco-labeling for environmentally sustainable production are expected to help labeled wood products fetch higher market prices."

Alternatives to Slash-and-Burn Agriculture

Many slash-and-burn farmers moved only recently into the forest areas and many never have farmed before, causing unnecessary destruction to the land. Often, they occupy forest land left behind by logging companies, or follow roads built by loggers into the forest.

ICRAF, CIFOR, national and international institutes, non-governmental organizations (NGOs) and universities have joined forces in a global effort to combat unsustainable slash-and-burn agriculture, a CGIAR system wide program known as the **Alternatives to Slash-and-Burn**, or ASB. In the long run, ASB will help reduce global warming, conserve forest biodiversity, alleviate poverty and increase food security by developing sustainable alternatives to slash-and-burn agriculture. ASB has research projects in tropical forest margins of Indonesia, Thailand, Cameroon, Brazil, Peru and Mexico.

With many workable technological alternatives to slash-and-burn already in hand, researchers are turning their attention to the all-important arena of policy. In much of the tropics, government policies actually encourage migrants to head into forest regions to clear new farms.

ASB researchers are looking carefully at policies on land and tree tenure, because people who have secure ownership of land and trees are more likely to look to the long term and stay put by planting trees and making their land sustainably productive. Policies can make credit available to farmers practicing sustainable farming, encourage community or on-farm tree nurseries, improve farmers' access to markets, strengthen infrastructure and remove bureaucratic obstacles that hinder small-scale farmers.

Adjusted policies are also needed to prevent increased deforestation when the adoption of more profitable farming technology induces farmers to clear more land. Once the options of this policy are institutionalized by governments, there is reason for hope that the benefits of agroforestry and forestry research will be felt in the forest margins throughout the tropics.

In settled areas outside the forest margins, intensification in small farms has actually increased the number of trees. This is evident in the Embu district around Mount Kenya, where smallholder corn (maize) and dairy farmers have planted large numbers of trees along their field boundaries for fodder and fuelwood.

"Such success stories -- small though they may appear now -- can have enormous positive impact when applied over large areas," says Mr. Sanchez. "This can be a win-win situation, where poverty alleviation and increased food security for the millions of people in the tropics also result in preserving the environment. Tree cover is protected or increased, critical watersheds needed to assure a safe water supply to urban settlements are protected, the world's richest source of animal

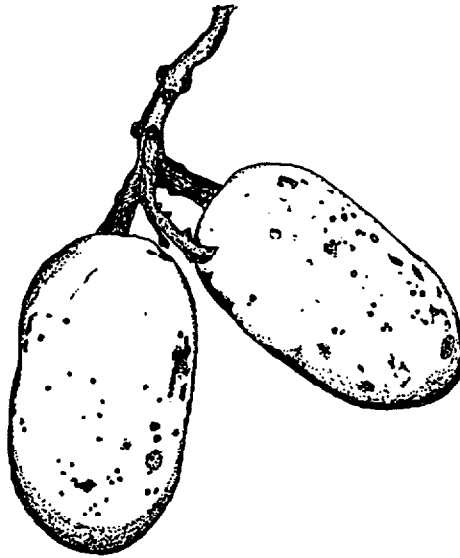
and plant biodiversity is preserved, and carbon is retained in plants and soils, thus minimizing global warming. To paraphrase an old African proverb, it is little people doing little things in a lot of little places that will change the face of the earth."

CGIAR is the world's largest international consortium for agricultural research and is jointly sponsored by the World Bank, the United Nations Development Programme, the Food and Agriculture Organization, and the United Nations Environment Programme. Currently, CGIAR spends about \$300 million per year, about 4 percent of total agricultural research expenditure in and for developing countries. In 1996, the CGIAR is investing \$24 million in forestry and agroforestry research.

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Uapaca kirkiana



**Fruits of *Dacryodes edulis*
(African plum)**